



Exploring Careers in Agriculture

Middle School Food and Agricultural Literacy Curriculum

Precepts

- N. Decision Making
 - N4. Choose a career based on passion, abilities, and aptitudes.

National Standards

- CS.02.03.01.a. Explore various career interests/options.
- CS.02.03.03.a. Identify the skills required for various careers.
- CS.03.02.04.c. Implement appropriate preparation plans for a career path based on passion, abilities, aptitude, opportunities.
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.1 – Science as Inquiry
- NS.5-8.6 – Science in Personal and Social Perspectives

Student Learning Objectives

- As a result of this **unit** the student will...
- Examine the components of food and agricultural literacy: applying mathematics and science concepts.
- As a result of this **lesson** the student will...
- Identify agriculture career opportunities.

Content Outline

Objective 1: Explore agriculture **career** opportunities.

I. Identify agriculture career opportunities

- A. Career vs. job
 - 1. A **career** is an occupation or profession, usually requiring special training and may be considered lifework for an individual.
 - 2. A **job** is a specific task done as part of a routine or could be a post of employment either part-time or full-time.

Time

Instruction time for this lesson: 45 minutes.

Resources

Career. (n.d.) In Ask.com, www.dictionary.com Retrieved from <http://dictionary.reference.com/browse/career>.
Job. (n.d.) In Ask.com, www.dictionary.com Retrieved from <http://dictionary.reference.com/browse/job>.
Student Pathways to Success. (2009). Retrieved August 22, 2009, from Missouri Department of Elementary and Secondary Education Career Education Web site: http://www.dese.mo.gov/divcareered/career_clusters.htm
Career Clusters – Focusing Education on the Future – Agriculture Food, Fiber, and Natural Resources. (2009). Retrieved August 22, 2009, from Missouri Department of Elementary and Secondary Education Career Education Web site: http://www.dese.mo.gov/divcareered/career_clusters.htm — Career Clusters – Focusing Education on the Future – Science, Technology, Engineering, and Mathematics. (2009). Retrieved August 22, 2009, from Missouri Department of Elementary and Secondary Education Career Education Web site: http://www.dese.mo.gov/divcareered/career_clusters.htm
CAREER CLUSTER CONTENT STANDARDS

Tools, Equipment, and Supplies

MS.IAS.8.7.AS.A – AS.J – one copy for each group
MS.IAS.8.7.TM.A –TM.J – one per teacher
Stickers, colored notecards, or other system to group students as they enter classroom
Transparency and projector
Personal journal
A prize for winning team (OPTIONAL)

Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

Job

Career

- B. Identify career clusters
 - 1. Agribusiness Systems
 - 2. Animal Systems
 - 3. Biotechnology Systems
 - 4. Environmental Service Systems
 - 5. Food Products and Processing Systems
 - 6. Natural Resource Systems
 - 7. Plant Systems
 - 8. Power, Structural, and Technical Systems



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C. Identify **careers** within each **career** cluster

1. Agribusiness Systems: international agri-marketing specialist, agricultural loan officer, agricultural commodity broker, farm/ranch manager, agricultural economist, livestock buyer/seller, feed/farm supply store manager, agricultural products buyer, agricultural salesperson
2. Animal Systems: animal geneticist, aquaculturalist, animal nutritionist, animal scientist, poultry manager, embryo technologist, veterinarian, feed sales representative, artificial insemination technologist
3. Biotechnology Systems: animal geneticist, plant geneticist, research technician, embryo technologist, forestry geneticist, lab technician, biotechnology engineer
4. Environmental Service Systems: pollution prevention and control manager, environmental sampling technician, health and safety sanitarian, hazardous materials handler, water environment manager, toxicologist, solid water disposer/recycler, environmental compliance assurance manager, water quality manager
5. Food Products and Processing Systems: food scientist, food and drug inspector, toxicologist, biochemist, meat cutter-grader, food and fiber engineer, product buyer, meat processor
6. Natural Resource Systems: wildlife manager or technician, water monitoring technician, park manager or technician, natural history interpreter, fish and game officer, forest worker or logger, forest manager or technician, fisheries manager or technician, mining engineer or technician
7. Plant Systems: plant breeder and geneticist, soil and water specialist, certified crop advisor, botanist, tree surgeon, education and extension specialist, golf course superintendent, greenhouse manager, forest geneticist
8. Power, Structural, and Technical Systems: remote sensing specialist, global positioning system technician, agricultural engineer, recycling technician, equipment parts manager, machinist, communication technician, welder

D. Explore a career cluster of interest

Interest Approach

Prior to class prepare stickers or notecards of different colors or markings, colored dots, or numbers to divide the students into groups of three to five. For example, if the class has 20 students and can evenly be split into five groups of four, gather five different stickers, four of each specific type, mix them up, and hand them out to students as they enter the room. After taking attendance or completing class-opening activity, have students gather in their groups based upon like stickers. The groups of students will complete **MS.IAS.8.7.AS.A.**

As we entered the room today, we each received a sticker, notecard, number, etc. Take the next 25 seconds to find the other insert number of other students in the group (3, 4, 5, etc.) students which share a like sticker, notecard, number, etc. Gather together, take a seat, and sit silently until your next set of instructions. GO!

Groups will complete **MS.IAS.8.7.AS.A.** Give groups three minutes to name an agriculture career starting with each letter of the alphabet. The team that gets the most careers, or completes their list in the fastest time will receive a prize.

Before we move forward let's answer this question: How do we know something is a career and not a job?

Solicit responses from students.

Great ideas! We can conclude that a **career** is an occupation or profession, usually requiring special training, and may be considered lifework for an individual. On the flip side, a **job** is a specific task done as part of a routine or a post of either part-time or full-time employment.

When I say WORK, your group will have three minutes to complete the following activity sheet, naming a **career** that starts with each letter of the alphabet. So just remember, we are looking for **careers** that begin with each letter of the alphabet, not just **jobs**. What clarification is needed? Oh, and this is a competition, so the team that has the most **careers** or completes their list in the fastest time will receive a prize. WORK!

Throughout the three minutes, continue updating groups on time remaining. Give them a two-minute warning, a 30-second warning, and a ten-second countdown.



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Summary of Content and Teaching Strategies

Objective 1. Explore agriculture **career** opportunities.

Complete **MS.IAS.8.7.TM.A** as a class, asking groups one by one to give a career for the next letter of the alphabet. For example, group 1 gives the career for the letter 'a,' group 2 for letter 'b,' etc. Continue this on the transparency until all 26 letters have been completed. If groups did not come up with a career for their letter, they may pass to the next group.

As I call out your group, shout out a **career** for the assigned letter of the alphabet. For example, group 1 will be first and will shout out a **career** for the letter 'A,' group 2 will shout out a **career** for letter 'B.'

Continue this process until all letters of the alphabet have been completed. When the list is complete, have students reflect upon the list. As a class, select careers that are related to agriculture with a star.

Wow, what a list! Let's take a few seconds now to look over our list. Together, let's determine the **careers** that are agriculture related. We will place a star next to these **careers** as they are identified.

Lead students to the conclusion that there are a number of careers within the agriculture sector, many more than simply farming or production agriculture.

As we can see, there are a number of **careers** on our list related to agriculture, many more than just farming or production agriculture. When it comes to agriculture, the possibilities seem endless. Today we have the opportunity to more deeply explore some of the **careers** we've listed, and many others that have not yet come to mind. Our eyes will be opened and exposed to a broad range of agricultural **careers**. In order to be successful today, keep your eyes and mind wide open and let yourself imagine what it would be like to perform some of these **careers** each and every day.

It's a journey that may help us decide which direction we plan to take in the future. It may help us discover a passion we've been looking to fulfill or skills we have the desire to share and improve. Today has potential to be life-changing as some of us will discover our calling, while others broaden our horizons. So, keep your eyes and mind open as we begin this powerful journey.

Copy one copy each of **MS.IAS.8.7.AS.B – MS.IAS.8.7.AS.I** for every group as designated above. Randomly place these activity sheets throughout the classroom. Give students two minutes to slowly and silently travel around the room, gazing at the pictures on each activity sheet. Instruct students that each must label one career that is depicted on the activity sheet and each must travel to at least five different sheets.

As we gaze around the room, we will notice there is a number of activity sheets posted. These activity sheets have four and five pictures of agricultural **careers**. When I say TRAVEL, move around the room gazing at each activity sheet. As you find a picture that is familiar to you, label the agricultural **career** being demonstrated. At the conclusion of two minutes each student will have labeled a maximum of five pictures, each from different activity sheets. What questions are there? How many pictures will you each label? Correct! Label five pictures. How many pictures per activity sheet may you each label? Correct! Label only one career per activity sheet. TRAVEL!

Distribute **MS.IAS.8.7.AS.J** to each group as you begin the next activity. Cut out each career cluster heading in advance, or have students complete this before the next activity. Using the Go-Get-It e-Moment®, have one student from each group go get an activity sheet posted around the room. Groups will match the career cluster heading with the activity sheet at their table.

Begin to travel back to your seat as our two-minute journey has ended. I think we have nailed some of these depictions of agricultural **careers**. Now, let's see if we can take this a step further.

Coming around to you are eight **career** cluster headings. Each of these headings matches one of the activity sheets displayed around the classroom. When I say GET IT, your group will choose one of these **career** cluster headings. Then, send one member of the group to get the activity sheet that matches that particular heading.



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Upon returning and correctly matching the two, another **career** cluster heading can be chosen and an activity sheet can be retrieved.

All members must participate in all parts of this activity, and most importantly, only one activity sheet can be retrieved at a time. What questions do you have? This is a race, so work together and think smart. GET IT!

As teams finish this task, keep track of the order in which they finish. After all teams have finished, go to the first group and check for their accuracy. If they are correct, they will receive a prize. If they are incorrect, move on to the next group. Continue until one group has all activity sheets labeled correctly.

Let's see how we did. Group name or number of group that finished first, looks like you finished first. Let's see if your headings are correct. Looks good! We have correctly identified the pictures of **careers** with the appropriate headings. Now, let's take a look at what we have in front of us.

Instruct groups to lay their eight activity sheets and headings out in front of them to be viewed together. Using **MS.IAS.8.7.TM.B – MS.IAS.8.7.TM.I**, reveal careers that fall under each specific career cluster. Use this transparency as a reference for careers, but also allow the students to add to the lists as they see fit. Students should record these on **MS.IAS.8.7.AS.K**.

As we can see, there are eight agricultural **career** clusters. **Career** clusters are a grouping of like **careers** that all pertain to a broad agricultural area. Finding an interest in one of these sectors will help us determine which **careers** we may be most interested in for the future. Let's explore these **career** clusters together. Let's begin with the Agribusiness Systems cluster. Examine the agribusiness systems activity sheet in front of you. What are some **careers** depicted on that sheet?

Solicit ideas from the class and add them to the appropriate transparency. Encourage students to do the same on **MS.IAS.8.7.AS.K**. At the conclusion of this exercise, reveal the rest of the list given on the appropriate transparency included in this lesson.

Yeah, those **careers** definitely fall into the agribusiness systems cluster. Here are few more we can add to our list.

Great job! Let's keep moving; onto the Animal Systems cluster.

Continue to complete the remaining seven career clusters as demonstrated above.

Wow! We have discovered quite a number of agricultural **careers** today. In just a moment each of us will have the opportunity to explore one of these **careers** more closely. This **career** will hopefully be one that you are individually passionate about and have a sincere interest for. Why is it important to choose a **career** that is interesting to you, that you are passionate about, or that you feel skilled in?

Solicit responses from the class in regard to the following:

We will do this job every day, so we have to be interested in it so we don't get bored. Having a passion for our career will make us better at it. If we choose a career that we are skilled in, we may be more successful or will get advancement sooner.

That is absolutely right! Being passionate about a career is so important in order for us to be successful and interested in it every day. Being skilled in that area will also be beneficial in helping us become more successful. However, there are options out there for us to become more knowledgeable about a particular career. Do not ever feel that you can't do something because you don't know how. Many of the careers we've discussed today take more education, a college degree, or some sort of technical skill placement and training. If we can start to decide what career path we want to follow, we can begin to plan for that advanced training or education. We are in a great place!

We have a number of years in front of us, and if we can start to get a grasp on what we would like to do after high school, we will be steps ahead of our competition. Great job today! Thanks for keeping an open mind and seeing what the agriculture industry has to offer!

Review/Summary

Now that we know what the agricultural industry has to offer, choose one of these career clusters that interests you most.

Allow a few moments for students to gather their thoughts and select a career cluster.

Now, close your eyes and picture yourself doing a **career** within that cluster.



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Allow students absolute silence and a few moments to picture this in their head.

Now take the next five minutes to draw an illustration or a picture of you doing that particular **job** in your personal journal. Underneath that picture, leave yourself a note about what you are personally feeling today in regard to your future **career** and the picture you have just drawn. When you have finished, silently close your journals and wait for further instructions.

Application

Extended classroom activity:

Use the Internet to research an agricultural career. Create a brochure about this career, the qualifications needed for this career, a job description, education needed, and the career outlook.

FFA activity:

During monthly FFA meetings, invite a local agricultural businessperson or industry worker to speak with the group about their particular career in the agricultural industry.

SAE activity:

Complete a scrapbook depicting at least three careers in the agricultural industry. Research this career, interview someone in that specific position, job shadow their place of employment, and take pictures of the experience.

Evaluation

Complete **MS.IAS.8.7.ASSESS.A**

Answers to Evaluation

Any of the following will work for the particular **career** pathway:

Agribusiness Systems

international agri-marketing specialist, agricultural loan officer, agricultural commodity broker, farm/ranch manager, agricultural economist, livestock buyer/seller, feed/farm supply store manager, agricultural products buyer, agricultural salesperson

Animal Systems

animal geneticist, aquaculturalist, animal nutritionist, animal scientist, poultry manager, embryo technologist, veterinarian, feed sales representative, artificial insemination technologist

Biotechnology Systems

animal geneticist, plant geneticist, research technician, embryo technologist, forestry geneticist, lab technician, biotechnology engineer

Environmental Service Systems

pollution prevention and control manager, environmental sampling technician, health and safety sanitarian, hazardous materials handler, water environment manager, toxicologist, solid water disposer/recycler, environmental compliance assurance manager, water quality manager

Food Products and Processing Systems

food scientist, food and drug inspector, toxicologist, biochemist, meat cutter-grader, food and fiber engineer, product buyer, meat processor

Natural Resource Systems

wildlife manager or technician, water monitoring technician, park manager or technician, natural history interpreter, fish and game officer, forest worker or logger, forest manager or technician, fisheries manager or technician, mining engineer or technician

Plant Systems

plant breeder and geneticist, soil and water specialist, certified crop advisor, botanist, tree surgeon, education and extension specialist, golf course superintendent, greenhouse manager, forest geneticist

Power, Structural, and Technical Systems

remote sensing specialist, global positioning system technician, agricultural engineer, recycling technician, equipment parts manager, machinist, communication technician, welder



Careers A to Z

Identify one career that begins with each letter of the alphabet.

A _____

N _____

B _____

O _____

C _____

P _____

D _____

Q _____

E _____

R _____

F _____

S _____

G _____

T _____

H _____

U _____

I _____

V _____

J _____

W _____

K _____

X _____

L _____

Y _____

M _____

Z _____



Careers A to Z

A _____

B _____

C _____

D _____

E _____

F _____

G _____

H _____

I _____

J _____

K _____

L _____

M _____

N _____

O _____

P _____

Q _____

R _____

S _____

T _____

U _____

V _____

W _____

X _____

Y _____

Z _____















MS.IAS.8.7.AS.H







Agribusiness Systems

Animal Systems

Biotechnology Systems

Environmental Service Systems

Food Products & Processing Systems

Natural Resource Systems

Plant Systems

Power, Structural, & Technical Systems



Agriculture Career Clusters

Agribusiness Systems

Animal Systems

Biotechnology Systems

Environmental Service Systems

Food Products & Processing Systems

Natural Resource Systems

Plant Systems

Power, Structural, & Technical Systems



Agribusiness Systems

International agri-marketing specialist

Agricultural loan officer

Agricultural commodity broker

Farm/ranch manager

Agricultural economist

Livestock buyer/seller

Feed/farm supply store manager

Agricultural products buyer

Agricultural salesperson



Animal Systems

Animal geneticist

Aquaculturalist

Animal nutritionist

Animal scientist

Poultry manager

Embryo technologist

Veterinarian

Feed sales representative

Artificial insemination technologist



Biotechnology Systems

Animal geneticist

Plant geneticist

Research technician

Embryo technologist

Forestry geneticist

Lab technician

Biotechnology engineer



Environmental Service Systems

Pollution prevention and control manager

Environmental sampling technician

Health and safety sanitarian

Hazardous materials handler

Water environment manager

Toxicologist

Solid waste disposer/recycler

**Environmental compliance assurance
manager**

Water quality manager



Food Products & Processing Systems

Food scientist

Food and drug inspector

Toxicologist

Biochemist

Meat cutter-grader

Food and fiber engineer

Product buyer

Meat processor



Natural Resource Systems

Wildlife manager or technician

Water monitoring technician

Park manager or technician

Natural history interpreter

Fish and game officer

Forest worker or logger

Forest manager or technician

Fisheries manager or technician

Mining engineer or technician



Plant Systems

Plant breeder and geneticist

Soil and water specialist

Certified crop advisor

Botanist

Tree surgeon

Education and extension specialist

Golf course superintendent

Greenhouse manager

Forest geneticist



Power, Structural, & Technical Systems

Remote sensing specialist

Global positioning system technician

Agricultural engineer

Recycling technician

Equipment parts manager

Machinist

Communication technician

Welder



Name _____

Directions: List two careers in each agricultural career pathway. Star the career pathway of interest. At the bottom of this paper, write one paragraph about a career of interest and why you are interested in that specific career or pathway.

Agribusiness Systems _____

Animal Systems _____

Biotechnology Systems _____

Environmental Service Systems _____

Food Products & Processing Systems _____

Natural Resource Systems _____

Plant Systems _____

Power, Structural, & Technical Systems _____

My career pathway of choice: _____

Why? _____

